

REMARKS

Claims 1, 10, 26-29, 34-38 are pending in this application. Claims 1 and 26 are currently amended. Claims 36-38 are new. Claims 2-6 and 9 have been withdrawn from further consideration as being drawn to a non-elected invention, and Applicants respectfully traverse this Election/Restriction. Claims 1, 26, and 36-38 are the independent claims.

Applicants greatly appreciate the observations and comments made by the Examiner in a phone interview on May 28, 2008.

Request for Reconsideration and Withdrawal of Modification of the Restriction/Election Requirement

In the Office Action dated October 11, 2006, the Patent Office first asserted a Restriction/Election Requirement, requiring election from among two Groups and 5 species. In a Reply filed November 13, 2006, Applicants elected the species of Embodiment 5, directed to Figures 39-43, without traverse. Applicants further identified Claims 1-6, 9, 10, 26-29, 34, and 35 as being directed to the elected Species.

In a Non-Final Office Action dated February 1, 2007, the Examiner rejected Claims 1-6, 9, 10, 26-29, 34, and 35, pursuant to 35 U.S.C. 103(a), based on a search of the prior art. The Examiner also rejected independent Claims 1 and 26 for lack of antecedent basis under 35 U.S.C. 112, second paragraph. On June 1, 2007, Applicants responded with arguments to overcome the prior art references and amendments of independent claims 1 and 26 to overcome the rejections under §112. The Examiner on the Non-Final Office Action was the first Examiner assigned to this Application.

On August 20, 2007, a Final Office Action was entered rejecting Claims 1-6, 9, 10, 26-29, 34, and 35, pursuant 35 U.S.C. 112, with Claims 26-29 and 35 being rejected under §112, first paragraph as failing to comply with the written description requirement, and Claims 1-6, 9, 10, 26-29, 34, and 35 being rejected under §112, second paragraph, as failing to comply with the

written description requirement. In addition, Claims 1-6, 9, 10, 26-29, 34, and 35 were rejected pursuant to a combined rejection under 35 U.S.C. 102(e) and 103(a).

On November 20, 2007, Applicants filed an After-Final Amendment. The Amendments were accepted, but the Application was held to not be in condition for allowance.

Applicants filed a Request for Continued Examination (RCE), which was granted, and, in the recent Non-Final Office Action, dated May 1, 2008, the Examiner, upon further review of the claims, concluded that only Claims 1, 10, 26-29, and 35 read on the elected Species, further asserting that claims 2-6 and 9 were drawn to different species. Accordingly, the Patent Office withdrew Claims 2-6 and 9 from further consideration. The Office Action additionally recognizes that Claim 1 is generic to all the species. The Examiner on the Final Office Action, the After-Final Advisory Action, and the recent Non-Final Office Action was the same Examiner.

Applicants respectfully traverse the modification of the Restriction/Election Requirement, and request reconsideration and withdrawal of that modification. Pursuant to 37 CFR 1.143, in the event that the modified Restriction/Election Requirement is made final, Applicants provisionally elect the modified Restriction to the Species of Embodiment 5, directed to Figures 39-43, modified to Claims 1, 10, 26-29, and 35.

Applicants respectfully request reconsideration and withdrawal of the modified Restriction/Election Requirement based on the following reasons:

The first argument supporting Applicants' request for reconsideration and withdrawal is that the inventions of Claims 1, 10, 26-29, and 35, are not patentably distinct from the inventions of Claims 2-6 and 9. Claims 2 depends from independent Claim 1, further limiting Claim 1 only by identifying the gate electrode of Claim 1 is a "branch electrode" and by adding a feature that the gate electrode has "an open end protruding from the semiconductor layer." See, dependent Claims 2.

Claims 3-6 further limit the invention of dependent Claim 2 and independent Claim 1. More specifically, Claims 3 and 4 further limit the TFT array substrate by specifying in Claim 3 that the “semiconductor layer is smaller in width than a portion confined within the area for the semiconductor layer,” and in Claim 4 that “the thin film transistor section further includes a source electrode and a drain electrode on the semiconductor layer, and a channel section is formed between the source and drain electrodes, and the portion of the branch electrode protruded from the area for the semiconductor layer is formed in contact with one of the source and drain electrodes.”

The branch electrode that is protruded from the are for the semiconductor layer of Claim 1 is further limited by a specific distance formula added in Claims 5 and 6. This “protruded” end is disclosed in the Specification in the discussion of features of the elected Fifth Embodiment. See, Specification, pages 94-97. Claim 9 further limits independent Claim 1 in that the semiconductor layer of Claim 1 is formed according to a specified formula of Claim 9. Further, the specific formulas of Claims 5, 6, and 9, in particular, were disclosed in the specification as being combinable with the elected embodiment, embodiment 5. See, Specification, page 94, line 8 through page 97, line 11, generally and, in particular, see the formulas of Claims 5, 6, and 9 disclosed in the Specification as being combinable with the Fifth Embodiment at page 95, line 6, page 95, line 23, and page 97, line 1, respectively.

The second argument supporting Applicants’ request for reconsideration and withdrawal is that Claims 2-6 and 9 have already been examined during previous Non-Final and Final Office Actions, and two different prior art references have been cited against the claims. Applicants respectfully submit that search and examination of the claims is not a serious burden, as proven by the fact that it has already been done twice, including once previously by the present Examiner. See, MPEP, §803.01, stating, in relevant part: “If the search and examination of all the claims in an application can be made without serious burden, the examiner must examine them on the merits, even though they include claims to independent or distinct inventions.”

Finally, the Examiner has failed to provide reasons and/or examples to support conclusions to the amendment to the restriction requirement. See, MPEP §803.01(II).

Therefore, Applicants respectfully traverse and request reconsideration and withdrawal the amendment Election/Restriction Requirement as to Claims 2-6 and 9.

The Non-Final Office Action, dated May 1, 2008, recognized independent Claim 1 as the generic claim. Applicants further respectfully request that all claims be considered and allowed in the event that the generic claim is allowed.

Claim Rejections Under 35 U.S.C. § 112

The Examiner rejected Claims 1, 10, 26-29, 34 and 35 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to point out and distinctly claim the subject matter which Applicants regard as the invention.

Applicants thank the Examiner for his observations and suggestions toward resolving this rejection, both in the Office Action and in the interview on May 28, 2008.

Applicants have amended independent Claims 1 and 26 in a good faith attempt to clarify the subject matter claimed as their invention, with such amendments being consistent with the Examiner's suggestions. No new matter has been added in those amendments. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Claim Rejections Under 35 U.S.C. § 102

The Examiner rejected claims 1, 10 and 34 under 35 U.S.C. § 102(a) as being anticipated by Wong et al. ("Amorphous silicon thin-film transistors and arrays fabricated by jet printing") [hereinafter "Wong"]. These rejections are respectively traversed.

Applicants respectfully submit that in order to anticipate a claim, a prior art reference must teach every element of the claim. “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of Calif.*, 814 F.3d 628, 631 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as contained in the . . . claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). See also, MPEP 2131.

Although Wong teaches the use of an inkjet in the manufacture of thin-film transistors, it also teaches that the inkjet copy the straight lines of what would have been deposited by traditional fabrication methods. As elaborated by Wong, a certain “phase-change wax” deposited onto a substrate of a certain temperature, 10°C, produced “improved coalescence between subsequent droplets while minimizing the spreading of the line features.” See, Wong, last paragraph on page 610 and continuing onto page 611, and Figure 1(b). The teachings in the text and in Figures 1(a)-(c) and 4, also teach that the inkjet is used to duplicate the conventional photolithographic process. Wong teaches to apply small connected inkjet droplets so as to mimic the straight lines of the conventional process. Wong does not teach the use of the drop shape from an inkjet in the creation of the semiconductor layer. AS an example of the straight line teachings of Wong, see, Wong, Figure 4, below:

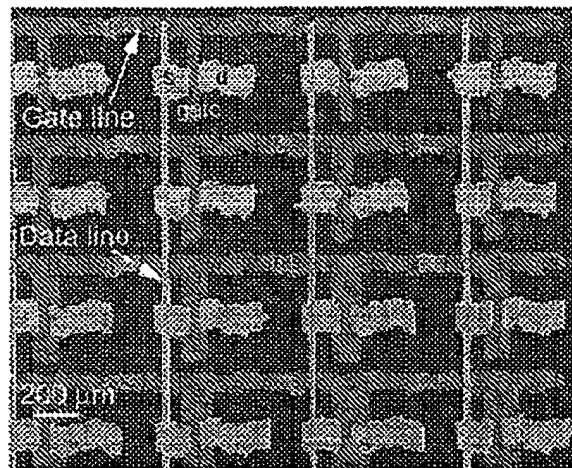
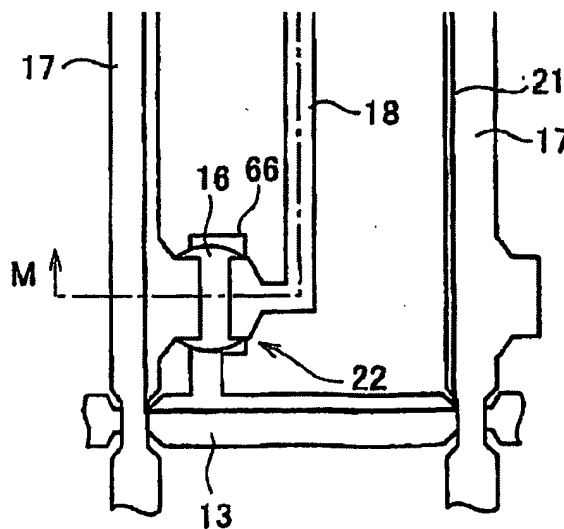


FIG. 4. Optical micrograph of a matrix addressing array structure. The gate line, data line, source/drain (labeled s and d, respectively), and gate features are labeled.

Applicants respectfully submit that there is no teaching in Figure 4, or elsewhere in Wong, that the semiconductor layer has “the shape formed by dropping a droplet,” as required in Claims 1, 10, and 34. Compare Wong, Figure 4, above, teaching rectangular semiconductor layers to the relevant portion of Figure 39(a), element 16, from the present application, teaching a “droplet shaped” semiconductor layer, as shown below:



The Office Action, page 4, cites Wong, pages 610-611, as teaching the semiconductor layer “having a shape formed by dropping a droplet.” Applicants respectfully disagree with this reading of Wong. Admittedly Wong teaches the fabrication of a semiconductor layer using material deposited by an inkjet, but the semiconductor is taught to be etched so as to be “self-aligned to the Cr gate.” Thus, the semiconductor layer takes on the shape of the Cr gate, which is a rectangular shape, as shown in Wong, Figure 4, which is reproduced above.

Accordingly, Applicants respectfully submit that Wong does not teach “the formed semiconductor layer having a shape formed by dropping a droplet,” and, therefore, Wong does not anticipate the claimed invention. Independent Claim 1, and its dependent claims, includes the limitation that “the formed semiconductor layer having a shape formed by dropping a droplet,” and the claims are therefore not anticipated by Wong.

Claim Rejections Under 35 U.S.C. § 103

The Office Action rejects claims 26-29 and 35 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0180898 to Yoo, et al. (hereinafter “Yoo”) in view of Wong. These rejections are respectfully traversed.

Applicants respectfully note that in order to establish a prima facie obviousness rejection, all claim limitations must be taught or suggested in the prior art. See, *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

As argued above in traverse of the rejections of Claims 1, 10, and 34 under 35 U.S.C. 102(a), Wong fails to teach the limitation of a “semiconductor layer having a shape formed by dropping a droplet.” Applicants respectfully submit that Wong also fails to suggest the same

limitation. Instead, Wong teaches a semiconductor layer following the rectangular Cr gate layer, which fails to reach or suggest the use of a semiconductor layer having a shape formed by “dropping a droplet.” See, Wong, Figure 4, reproduced above. Similarly, the reference, Yoo, fails to teach or suggest the

Independent Claims 36, 37, and 38 also include the limitation of the conductor layer and the semiconductor layer having a shape formed by “dropping a droplet.”

Independent Claim 26 includes the limitation that the conductor layer and the semiconductor layer have “the same shape in the portion formed by dropping a droplet.”

Accordingly, Applicants respectfully submit that all independent claims, Claims 1, 26, 36, 37, and 38, are allowable at least because the limitation of a semiconductor layer having a shape formed by “dropping a droplet,” which is neither taught nor suggested by the references. In addition, Applicants also respectfully submits that dependent claims 10, 27-29, 34, and 35 are allowable at least because they depend from allowable claims.

Regarding New Claims 36, 37, and 38

Claims 36-38 are new. No new material was added with the claims. Claims 36 and 37 are comprised of the limitations of the combination of Independent Claim 1 and Claim 2, and combined with elements of Claims 5 and 6 respectively. Claim 38 is comprised of the limitations of the combination of independent Claims with Claim 9. More specifically, Claim 36 incorporates the features of Claims 1, 2 and 5; Claim 37 incorporates the features of Claims 1, 2, and 6; and, Claim 38 incorporates the features of claims 1 and 9. Support for new Claims 36-38 is disclosed at least in the Specification, pages 94-97, disclosing modifications to the Fifth Embodiment. Applicants respectfully note that they have elected the Fifth Embodiment, and believe in good faith that new Claims 36-38 are within the scope of the elected invention.

Applicants respectfully submit that new Claims 36, 37, and 38 distinguish over the cited prior art at least in part by the inclusion of specific formulae relating to size limitations, and at least in part due to the limitation of the semiconductor having a shape formed by dropping a droplet.

Applicants again respectfully submit that the references individually and together fail to teach or suggest at least the limitation of a semiconductor layer in a shaped “formed by dropping a droplet.” Additionally, Applicants respectfully submit that the cited prior art fails to teach or suggest the distance and size limitations of original Claims 5, 6, and 9, which are now incorporated into new independent claims 36, 37, and 38, respectively.

CONCLUSION

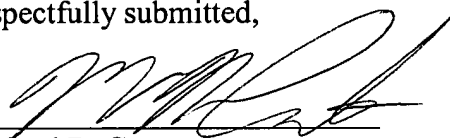
In view of the above Amendment, Applicants believe the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael R. Cammarata, Reg. No. 39,491 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.147; particularly, extension of time fees.

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Respectfully submitted,

By 

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